UNITED STATES PATENT OFFICE.

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EXPLODER FOR AUTOMOBILE-TORPEDOES.

953,848. Specification of Letters Patent. Patented Apr. 5, 1910.

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To all whom it may concern:

Be it known that I, FRANK M. LEAVITT, a citizen of the United States, residing in the borough of Brooklyn, county of Kings, city and State of New York, have invented certain new and useful Improvements in Exploders for Automobile-Torpedoes, of which the following is a specification.

Automobile torpedoes are commonly provided with two heads or bow sections, the one called the "practice head," for use in practice runs, and the other called the "war head," carrying explosive for use in actual warfare.

The present invention relates to the war head, and has particular reference to the means for exploding the explosive charge and to the safety devices for guarding against premature explosion.

The ordinary war head has a small screw propeller at its prow, which, as it is driven through the water, is turned by the water, and turns its screw spindle in a threaded sleeve to bring the firing mechanism from its original safety or inoperative position to the active or operative position, after which, if the propeller strikes any obstacle, such as the hull of a vessel, so as to be driven back thereby, the mechanism acts to explode the charge. This means of effecting the explosion operates well when the torpedo strikes a nearly direct blow against the hull, but if it strikes a glancing blow it often occurs that the charge is not exploded.

One object of the present invention is to provide for more certainly exploding the charge when the torpedo strikes an oblique or glancing blow.

Another object of the present invention is to provide more effective safety devices than those heretofore employed.

The accompanying drawings show the preferred embodiment of my invention.

Figure 1 is a side elevation of the bow portion or war head of the torpedo. Fig. 2 is a front elevation thereof on a larger scale. Fig. 3 is a fragmentary vertical longitudinal midsection on a still larger scale, showing the firing mechanism after the torpedo has run far enough to throw the safety device out of action and put the mechanism into operative condition ready for firing. Fig. 4 is a similar section of the parts in the starting position, with the safety devices in position to prevent premature explosion. Fig. 5 is a side elevation of the oscillatory safety sleeve, with the slide carried thereby. Fig. 6 is a section on the line 6—6 in Fig. 4. Fig. 7 is a longitudinal section of the sleeve on the line 7—7 in Fig. 5. Fig. 8 is a front elevation thereof. Fig. 9 is a front elevation partly in section on the plane of the line 9—9 in Fig. 4, showing the parts in the safety position, the parts within the sleeve being removed. Fig. 10 is a front elevation of the central plug, and Fig. 11 is a longitudinal midsection thereof. Fig. 12 is a fragmentary diagrammatic view showing the operation of firing by means of the trigger levers. Fig. 13 is a fragmentary view showing the operation of firing by direct impact of the propeller against the target. Fig. 14 is a similar view to Fig. 13, but showing the action when the impact occurs with the parts in the safety position.

Referring to the drawings, let A designate the detachable bow section of the torpedo which as a whole is called the war head. B (Fig. 3) is the shell or hull thereof.

C is the concentric tube projecting inward from the prow and forming the chamber D for receiving the exploder or firing mechanism which as a whole is designated by the letter E.

F is the usual propeller mounted to project from the prow of the torpedo and having oblique blades or wings, so that as the torpedo progresses the propeller is revolved and turns its screw stem G so as to screw it outwardly from the starting position shown in Fig. 4 to the final or operative position shown in Fig. 3.

The exploder E comprises a body H, a central normally stationary eccentric plug I, an intervening oscillatable safety sleeve J, a spring-pressed hammer K, its trigger L, a trigger-operating slide M, a hinged plate or ring P, a front plate or ring Q, and a safety latch R operated by the stem G of the propeller F.

The body H comprises a concentric neck *a* which is threaded into the nose-piece S; and a concentric portion *b* at its rear end adapted to receive the usual primer cap and having a primer chamber *c*; and between the parts *a* and *b* is an eccentric tubular shell *d* form-